Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands	)	WT Docket No. 03-66 RM-10586
	)	WT Docket No. 03-67
Part 1 of the Commission's Rules - Further Competitive Bidding Procedures	)	
	)	MM Docket No. 97-217
Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and the Instructional Television Fixed Service Amendment of Parts 21 and 74 to Engage in Fixed Two-Way Transmissions	)	
	)	WT Docket No. 02-68
Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Licensing in the Multipoint Distribution Service and in the Instructional Television Fixed Service for the Gulf of Mexico	)	RM-9718

COMMENTS OF NOKIA INC.

Nokia Inc. ("Nokia") hereby submits these comments in response to the Notice of Proposed Rulemaking ("NPRM") in the above-mentioned proceeding.[1] Nokia is the world leader in mobile communications. The company is the leading supplier of mobile phones and a leading supplier of mobile, fixed broadband and IP networks. Nokia is a broadly held company with listings on six stock exchanges.

Nokia supports the Commission's efforts in this NPRM to develop new rules and policies for the 2500-2690 MHz frequency band that would facilitate the deployment of terrestrial mobile services in this band. This NPRM and the proposal by the Wireless Communications Association ("WCA") and the Catholic Television Network ("CTN") (collectively "the Coalition") represents a positive step towards making this band usable for advanced mobile services, such as third-generation ("3G") services that can deliver mobile voice and high-speed data. Demand for these types of services continues to increase and even

with the Commission's earlier decision to allocate 90 MHz of spectrum for advanced wireless services at 1710-1755 MHz paired 2110-2155 MHz[2], more spectrum is needed to meet this growing demand.

Nokia urges the Commission to make global harmonization of spectrum a priority in developing the rules and policies that will govern this band. As noted in the NPRM, the International Telecommunication Union (ITU)'s World Radiocommunication Conference-2000 ("WRC-2000") identified, among other bands, the 2500-2690 MHz for use by terrestrial IMT-2000 on a global basis.[3] ITU-R Working Party 8F ("ITU-R WP8F") continues its work by developing global frequency arrangements for this band. Nokia urges the Commission to continue to actively participate in and monitor this activity, as well as ongoing regional efforts to develop band plans by the European Conference of Postal and Telecommunications Administrations ("CEPT") and the Inter-American Telecommunication Commission ("CITEL") Permanent Consultative Committee II ("PCC II"). As work on these band plans progresses, Nokia hopes the Commission will make decisions with respect to this band that maximize the possibilities for global harmonization, recognizing that globally harmonized spectrum brings the benefits of economies of scale, lowering the cost of equipment and facilitating international roaming.

The Coalition proposal contemplates accommodating both FDD and TDD uses in this band. The Commission seeks comment on whether the rules should specify upstream and downstream channels for FDD and similar technologies and on whether formal channel pairings should be established.[4] Studies completed or in progress within ITU-R WP8F have shown that sufficient co-existence between adjacent FDD and TDD technologies is only possible with the deployment of additional mitigation techniques.[5]

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[1] FCC 03-66 (released Apr. 2, 2003).
[2] Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems and Amendment of the U.S. Table of Frequency Allocation to Designate the 2500-2520/2670-2690 MHz for the Mobile-Satellite Services, *First Report and Order and Memorandum Opinion and Order*, ET Docket No. 00-258 (September 6, 2001).
[3] *NPRM,* at ¶ 11
[4] *NRPM,* at ¶ 142
[5] *See* "Draft New Report ITU-R M.[IMT.COXT] on the Coexistence between IMT-2000 TDD and FDD Radio Interface Technologies Operating in Adjacent Bands and in the Same Geographical Area", ITU-R WP 8F, Attachment 7.12 to Chairman's report of the 7th meeting of the Working Party 8F, 27 February to 5 March 2002, Queenstown, New Zealand. *See"* Working Document Towards A Preliminary Draft New Report on Mitigating Techniques to Address Coexistence Between IMT-2000 TDD and FDD Radio

Nokia believes that, where TDD and FDD co-exist, significant guardbands will be necessary. While the size of these guardbands will depend on the TDD power levels and other mitigation techniques in use, it should be noted that these guardbands would result in inefficient use of spectrum, essentially "wasting" prime mobile spectrum.

For these reasons, Nokia believes that establishing formal channel pairings is the best approach to minimizing problems in this band and ensuring a sufficiently predictable interference environment. Without specifying what technologies are to be deployed, we believe the Commission should determine if a particular channel is uplink only or downlink only. At this point in time, technologies such as software-defined radios ("SDRs") are not sufficiently developed to contribute to the mitigation of interference. Interference mitigation continues to rely on appropriate frequency arrangements and better filtering.

With respect to the Coalition's proposal to use the same out-of-band emission limits of $43 + 10 \log_{10}(P)$ dB as currently required by Part 24 in the PCS bands, Nokia supports this proposal. However, with respect to the Coalition's proposal that rule changes be made that require a licensee to reduce its out-of-band emission limits by at least $67 + 10 \log_{10}(P)$ dB upon written request from an adjacent channel licensee, we agree with the Commission that this recommendation is overly burdensome and should not be adopted.[6] We do not believe that it would be appropriate for the Commission to apply the emission limits contained in Part 27 of its rules as that would require emission masks 10dB more stringent that what is currently supported by the WCDMA or CDMA2000 standards. We urge the Commission to ensure that its emission limits are in harmony with international industry-developed standards.

Finally, the Commission seeks comment on permitting unlicensed "underlay" operations in this band.[7] Nokia believes that the Commission should approach this concept with caution. We believe the Commission should defer adopting this type of new policy until it has fully studied and made policy

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Interface Technologies Within the Frequency Range 2 500-2 690 MHZ Operating in Adjacent Bands and in the Same Geographical Area", ITU-R WP8F.

[6] *NPRM*, at ¶ 141.

[7] *NPRM*, at ¶ 143-148.

decisions on the related concepts proposed by the Spectrum Policy Task Force in its report[8], such as "interference temperature". The Spectrum Policy Task Force itself advised caution in its recommendations when it stated that the Commission should "at a later time, after evaluating the effectiveness of secondary markets approach, assess *whether* there is a need to create government-granted 'easements' for some type of access, but consider the potential impact of this approach on planning and investment by licensed users."[9] The Commission has yet to demonstrate that measuring and monitoring "interference temperature" is technically feasible or useful towards mitigating interference. Given the complex nature of this band, serious interference considerations among its licensed uses, and challenging transition issues, Nokia does not believe this band a good place in which to test an unproven concept.

In summary, Nokia believes the Commission is taking a good step towards making more terrestrial mobile spectrum available with the NPRM. We support the Commission's efforts to adapt this band to evolving demands. We encourage the Commission to attempt to develop a plan that allows for the maximum amount of global spectrum harmonization and that the Commission actively participate in the international work on frequency arrangements for this band. We urge the Commission to pay particular attention to addressing sharing issues between differing technologies and caution against further complicating the sharing issues in this band with unlicensed underlay uses.

[8] *Spectrum Policy Task Force Report,* ET Docket No. 02-135*,* November 2002
[9] *Id,* at p.67.